What is claimed is:

1. A piston type compressor comprising:

a housing including a cylinder head which defines a discharge chamber and a cooling chamber, the cooling chamber being located adjacent to and surrounding the discharge chamber, the housing defining a suction chamber, a compression chamber, and a crank chamber, the cooling chamber being isolated from the suction chamber, gas being introduced from an outside of the housing into the suction chamber;

a rotary shaft rotatably supported by the housing;

a cam accommodated in the crank chamber;

a piston operatively coupled to the rotary shaft through the cam, wherein rotation of the rotary shaft is converted to reciprocation of the piston;

a seal member shutting communication between the cooling chamber and an atmosphere outside the compressor to seal an inside of the cylinder head; and

an introducing passage interconnecting the cooling chamber and the crank chamber.

2. The piston type compressor according to claim 1, wherein a plurality of the introducing passages interconnects the cooling chamber and the crank chamber.

3. The piston type compressor according to claim 1, wherein the housing further includes a housing component, a through hole being formed in the housing for inserting a bolt which fastens the housing component to the cylinder head, a clearance between an inner circumferential surface of the through hole and an outer circumferential surface of the bolt serving as the introducing passage.

4. The piston type compressor according to claim 1, wherein the cooling chamber forms an annular shape around the discharge chamber.

5. The piston type compressor according to claim 4, wherein the cooling chamber forms an endlessly annular shape.

6. The piston type compressor according to claim 1, wherein the housing has a first end and a second end, the piston of a double-headed type defining the first and second compression chambers which are respectively located on the first end side of the housing and on the second end side of the housing, the cylinder head including a pair of first and second cylinder heads which is respectively located on the first end and on the second end, the discharge chamber including a first discharge chamber and a second discharge chamber, the first cylinder head defining the first discharge chamber, the second cylinder

head defining the suction chamber and the second discharge chamber, the suction chamber in the second cylinder head communicating with the first compression chamber through a suction passage, the gas from an external circuit being introduced into the second compression chamber through the suction chamber in the second cylinder head and being introduced into the first compression chamber through the suction chamber in the second cylinder head and the suction passage, the cooling chamber being at least formed in the first cylinder head.

7. The piston type compressor according to claim 6, wherein the second discharge chamber in the second cylinder head is formed to surround an outer circumference of the suction chamber, a gas passage interconnecting the first and second compression chambers and the suction chamber, wherein the compressor further comprising:

a pair of suction valve devices respectively applied for the first and the second compression chambers, rotary valves serving as the suction valve devices for opening and closing the gas passage as the rotary valves rotate integrally with the rotary shaft, wherein an axial passage is formed in the rotary shaft, a portion of the suction passage which constitutes the gas passage being formed by the axial passage.

8. The piston type compressor according to claim 7, wherein the rotary

valves are integrally formed with the rotary shaft.

9. The piston type compressor according to claim 7, wherein the rotary valves are separately formed from the rotary shaft.

10. The piston type compressor according to claim 1, wherein the crank chamber doubles as the suction chamber, the gas from the outside of the housing being introduced into the compression chamber without passing through the cylinder head.

11. The piston type compressor according to claim 1, wherein the cooling chamber is located between an outer circumference of the cylinder head and the outer circumference of the discharge chamber.

12. The piston type compressor according to claim 1, wherein the piston is a double-headed type.

13. The piston type compressor according to claim 1, wherein the piston is a single-headed type.

14. The piston type compressor according to claim 1, wherein the compressor is a variable displacement type.